(No Model.)

W. H. DRAKE.

STEAM BOILER.

No. 464,065. Patented Dec. 1, 1891.

Fig. 1.

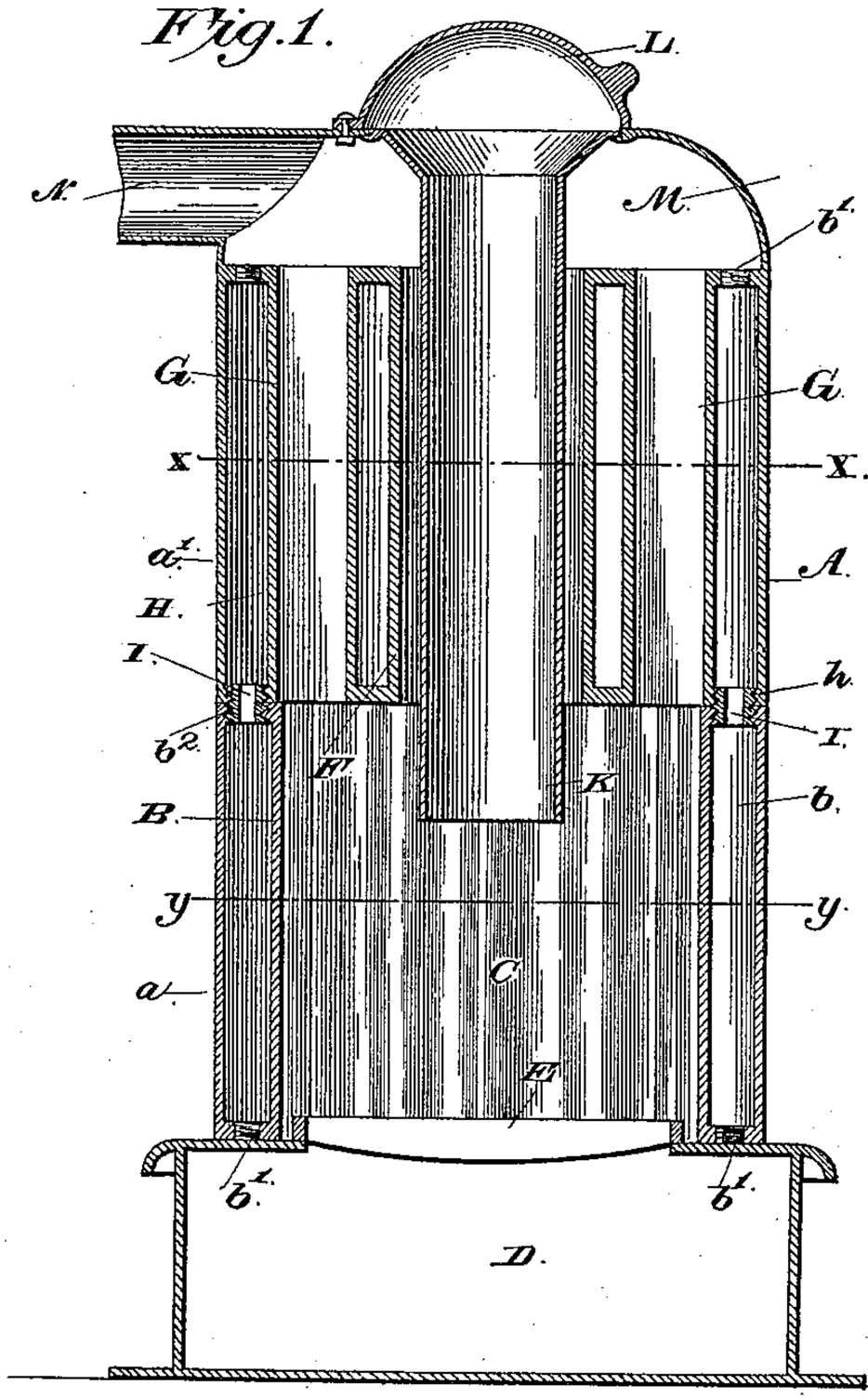


Fig. 2.

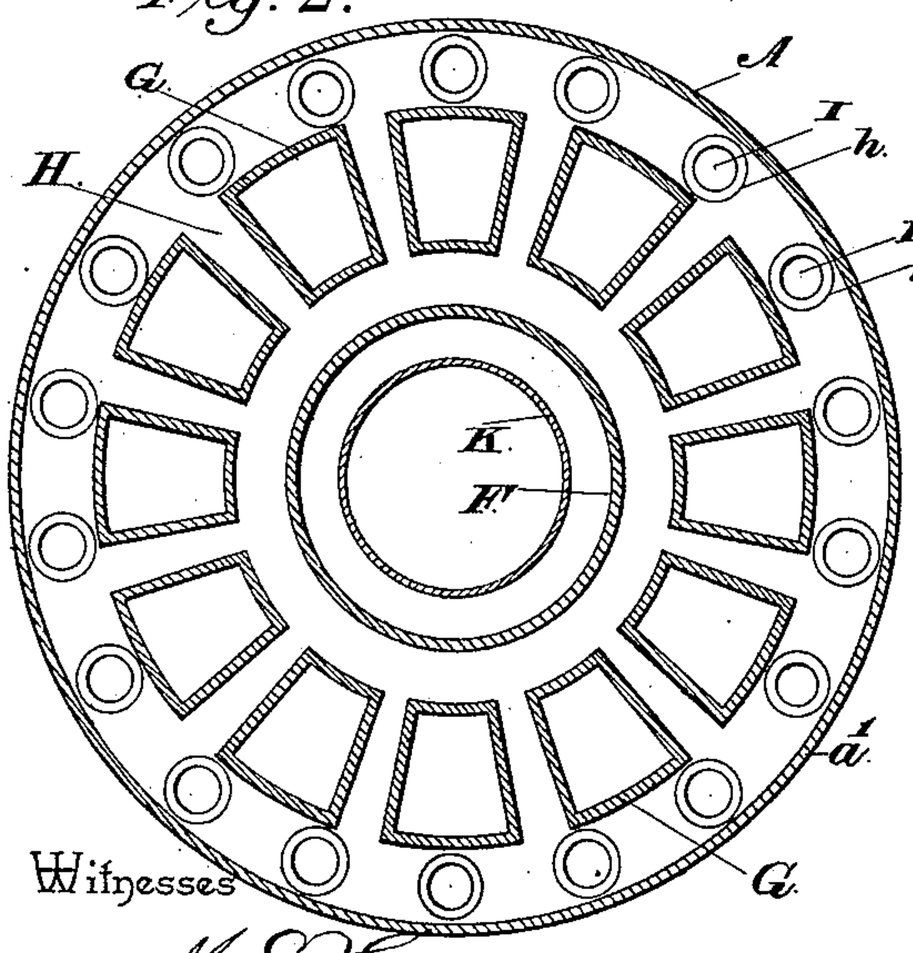
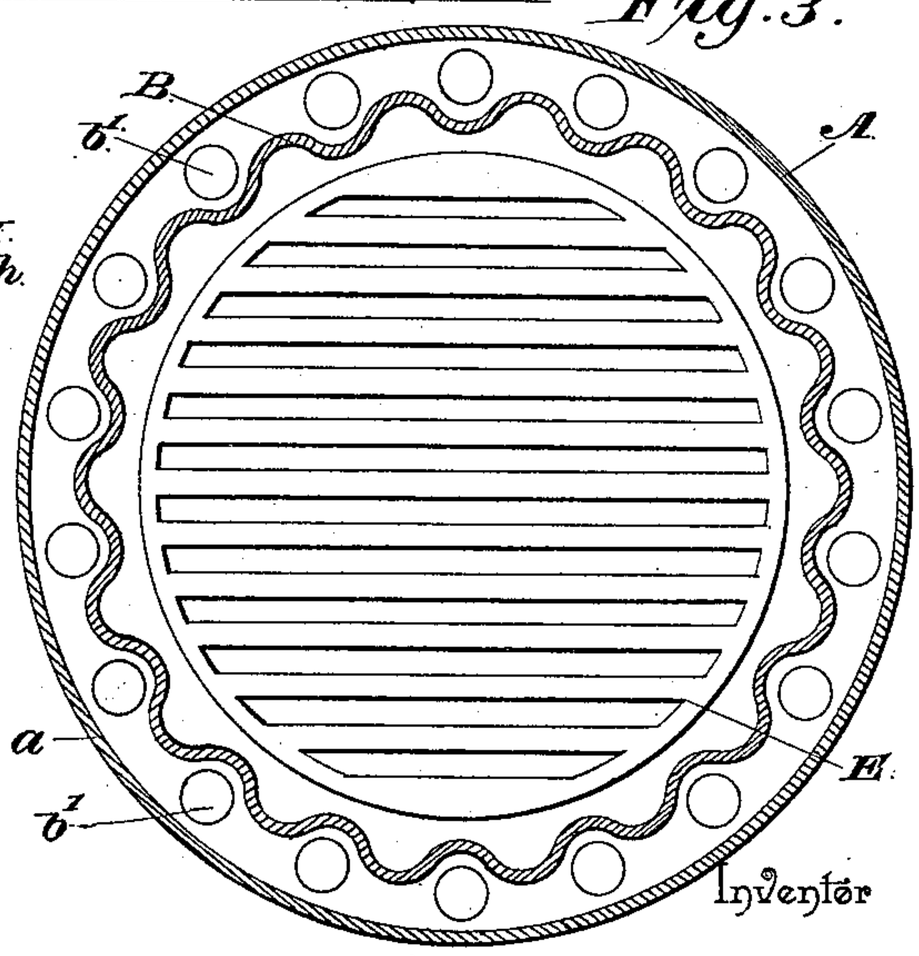


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM H. DRAKE, OF HACKETTSTOWN, NEW JERSEY.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 464,065, dated December 1, 1891.

Application filed July 21, 1891. Serial No. 400,197. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. DRAKE, a citizen of the United States, residing at Hackettstown, in the county of Warren and State of New Jersey, have invented a new and useful Steam-Boiler, of which the following is a specification.

My invention relates not only to improvements in steam-boilers that are especially adapted for steam and hot-water heating, but to those that are also calculated for furnishing steam for power upon a small scale, and has for its object to provide a boiler of the upright tubular style that shall be cast in sections, and will be provided with such simple yet efficient connections between the parts that will provide an easy handling both in setting the boiler up for use or in detaching the various parts for the purposes of cleansing or removal; and with these objects in view the invention consists of a steam-boiler cast in two sections and connected together and constructed in a novel manner hereinafter fully described, illustrated in the accompanying drawings, and specifically pointed out in the appended claim.

In the accompanying drawings, Figure 1 is a vertical section of a steam-boiler constructed in accordance with my invention. Fig. 2 is a cross-section on the line $x\ x$ of Fig. 1. Fig. 3 is a cross-section on the line $y\ y$ of Fig. 1.

Referring to the accompanying drawings, A designates an upright tubular boiler cast in the two sections a and a'. The lower section a is cast to form one-half of the height of the entire boiler when put together, and is provided with the interior corrugated wall B, which forms the walls of the fire-box C, and between the same and the outer wall of the said lower section the water-space b is formed therebetween. Surrounding the base of said lower casting a and at varied intervals are screw-threaded openings, into which are firmly seated the screw-plugs b' which close said openings, communicating with the water-space b between the outer shell of the lower casting and the inner corrugated wall, and thus provide means whereby access may be had to the inclosed water-space to remove sediment and other foreign matter which may have collected within the same. The lower section a is seated upon the ash-box D, over which and at the bottom of the inclosed fire-box C is the ordinary grate E upon which fire is kindled. Directly above the plugged openings communicating with said water-space and arranged around the top edge of the casting and at correspondingly-varied intervals are the threaded openings b^2, which also communicate with the inclosed water-space and provide communication and connection between the two sections of the boiler. The entire upper section a' comprising the remaining part of the boiler is also cast in one single piece with all the parts contained in this section. Cast within the upper section a' is a large central circular fire-flue F and a series of concentric independent fire-flues G, all of which are integrally cast with the upper section of the boiler. Within said circular flue and within and around the series of concentric flues G is formed the large water-space H, which has a suitable inlet for the water and outlet for the generated steam. Around the bottom edge of said casting and adapted to register with the threaded openings b^2 in the top edge of the lower casting are a series of threaded openings h, which are arranged at intervals corresponding to those of the threaded perforations in the lower casting, and said perforations in both castings are designed to register exactly with each other, so that when the top casting forming the upper section of the boiler is placed upon the lower section the said openings form a communication between the water-spaces of both sections. The two sections are firmly held together, and the joints between the two sections are tightly closed by means of the nipples I, threaded their entire length and screwed into said threaded perforations, thus forming, as said, a compact joint between the two sections and communicating means whereby the water is allowed a free circulation and also a rigid connection between the same. Around the top edge of the upper casting or section of the boiler and at regular intervals are the plugged openings b', corresponding to the plugged openings b' in the lower section of the boiler, both of which are in communication with the inclosed water-space.

Depending within the large circular flue F from the top of the boiler-shell is the coal-

magazine K, which extends a slight distance below the lower edge of the fire-flues and into the fire-box, providing the ordinary means for supplying coal to the boilers of this character, the upper end of said feeder or coal-magazine being closed by the ordinary cover L. The smoke and gases passing through the fire flues or tubes accumulate in the smoke-box M, located at the upper end of the boiler, and which is in communication with the usual smoke-pipe N, while the circulation of water within the water-space and the exit of the steam therefrom is made by the ordinary connections.

The construction and operation of my improved sectional boiler are now thought to be apparent without further description.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

In an upright tubular boiler, the same consisting of an upper and lower casting, the lower casting being provided with an integral inner corrugated wall inclosing a water-space and the fire-box and the top edge of said casting being further provided with threaded perforations communicating with the water-space, the upper casting provided with a large central flue and a series of concentric smaller flues integrally cast with the shell of the boiler and the said casting being provided around its lower edge with a series of threaded perforations communicating with the inclosed water-space, and exteriorly-threaded nipples joining the threaded perforations in both castings, which are in absolute contact, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WILLIAM H. DRAKE.

Witnesses:

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W. A. ACKLEY.